This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS**

Claims 1-6 (Canceled)

7. (Currently Amended) A reactor system for deposition of diamond films from a gaseous phase in a plasma of a microwave discharge, which system contains a microwave generator, a transmission line ending with a quasi-optical electrodynamic system, a reaction chamber with a substrate on a substrate holder placed in the chamber, and a system for pump-in and pump-out of the selected gaseous mixture, the improvement which comprises a quasi-optical electrodynamic system with four concave mirrors focused together towards the plasma and adapted to form a standing microwave in an area selected in a vicinity of the substrate, and the transmission line is ~~an oversized~~ a circular waveguide with corrugation of its internal surface, which is supplemented with a mirror system to transfer ~~at least one~~ four Gaussian beams to the said quasi-optical electrodynamic system, so that the four beams are focused towards the plasma.

8. (Currently Amended) The reactor system of Claim 7 wherein the quasi-optical system has the four concave mirrors situated on different sides relative to a region of plasma formation and to direct the microwave radiation as the four Gaussian ~~wave~~ beams which cross, wherein the

crossing is pairwise, and wherein the quasi-electrodynamic system together with a part of the transmission line are installed within the reaction chamber, and wherein the transmission line is supplemented with a divider coupled with a set of the four plane mirrors, which divides one wave beam into the four beams and is installed at an output of the ~~said~~ ~~oversized~~ circular waveguide.

Claims 9-13 (Canceled)

14. (Currently Amended) The reactor system of ~~any one of Claims 8, 9 or 10~~ Claims 7 or 8 wherein a system for pumping gas into the reaction chamber into the region of the plasma formation is a concave metal screen with a feeding tube in a central part, and the screen is situated over the substrate holder at an adjustable distance, and the system for pumping the gas out is made as a set of apertures in the substrate support, which has a volume for the evacuated gas mixture, and in this volume the system for water cooling of the upper part of the substrate support is situated.

15. (Canceled)